

risk for subsequent death from asthma, and is also an indicator of subsequent risk for readmission.

The Victorian asthma mortality study reported that 65% of cases ($n = 193$) had been provided with an appropriate asthma management plan, compared with 37% of asthma death cases and 49% of NFA cases in the present South Australian asthma mortality study. Only 31% of asthma death cases and 38% of NFA cases were reported as having used a peak flow meter at home, which is not significantly different from the proportion (31%) previously reported amongst asthmatics attending accident and emergency departments in 1992. Only 13 of 163 cases were reported to have had a peak expiratory flow meter in the Victorian asthma mortality study performed in 1986.

Prior medical management was assessed as optimal in only 25% of asthma death and NFA cases combined, with no significant difference between the two groups, on the basis of a consensus opinion of a reviewing committee. The perception of the quality of the medical management was extremely difficult to distinguish, however, from the quality of personal asthma management. Individual self management was assessed as poor for 53% of asthma death cases and 67% of NFA cases. However, when the analysis was restricted to subjects aged less than 60 years, similar levels of poor self management were seen for both groups. Reported compliance with prescribed medication from general practitioner reports was similar for the two groups (69% and 58% respectively).

That 53% of asthma death cases and 45% of NFA cases in the present study were regularly using beta agonists without concomitant preventive medication gives cause for concern. The corresponding figure for the Victorian asthma mortality study was 41%. Regular use of oral corticosteroids were reported for 26% of the asthma death and 16% of the NFA cases, with a figure of 16% also applying in the Victorian asthma mortality study, compared with 42% in the New Zealand study from the early 1980s and 69% in the British study from the late 1970s.

Reportedly, 16% of asthma death cases and 24% of NFA cases had purchased medications (inhaled beta agonists) directly from the pharmacist without a doctor's prescription. Asthmatics who purchase beta agonists directly from the pharmacist have been shown to be less likely to consult with family doctors and also less likely to use prescription-only medication. The high rate of repeat purchase of asthma medication on prescription without further medical consultation, as observed for asthma death (24%) and NFA

cases (42%), suggests that an opportunity for regular review and education regarding appropriate asthma treatment is not being utilised for asthmatics who have clearly experienced high levels of prior morbidity due to asthma.

Delay in seeking medical care was a feature of the final event for 56% of asthma deaths and 58% of NFA cases. Delay in receiving medical care was more common in the asthma death group than the NFA group. Amongst those cases where the final event was considered either definitely or probably preventable, delay in actually receiving medical care and less ready access to acute medical care distinguished death cases from NFA cases.

Asthma education will need to provide asthmatics with skills to recognise deteriorating control of asthma, and with appropriate strategies to manage the deterioration. At present, many asthmatics appear just to increase the use of inhaled beta agonist therapy, adopting a 'wait and see' approach hoping the situation will improve. It is of concern that in response to increased asthma symptoms only 20% of asthma death and NFA cases were reported to have increased use of oral corticosteroid medication in the prior 12 months, while over 80% of cases in both groups had increased the use of beta agonists.

Overall, 22% of asthma deaths in the present study were assessed as definitely having preventable factors associated, and 8% of the NFA cases were so assessed, compared with 37% of 126 asthma death cases which were assessed as definitely preventable in the Victorian study. Almost two-thirds (62%) of asthma death cases in the present study were considered definitely or probably preventable, compared with 61% of 271 cases in the New Zealand asthma mortality study, and 86% of 90 cases in the British study. A higher proportion of NFA cases (83%) was assessed as having preventable factors definitely or probably present, possibly reflecting the lower incidence of end-stage asthma in this younger group.

Reference

- LEUNG, R. C., CARLIN, J. B., BURDON, J. G. & CZARNY, D., 1994. Asthma and allergy and atopy in Asian immigrants in Melbourne. *Medical Journal of Australia* 161(7): 418-425.

R. J. PIERCE

ASTHMA PREVENTION AND TREATMENT

Asthma is a disease of the airways—the branching system of tubes through which we draw air into the lungs, where exchange of oxygen and carbon

dioxide with the blood and tissues occurs. The fundamental abnormality in asthma is inflammation of the inner lining of the airways with swelling, secretion and narrowing of the lumen and air passage. There is also contraction of the bronchial smooth muscle surrounding the airways with resultant further narrowing of the lumen.

The principles of management of asthma involve firstly the prevention and treatment of airway inflammation and secondly relaxation of the bronchial smooth muscle.

Detailed analysis of asthma deaths has revealed that many result from lack of the knowledge about the condition on the part of many patients, and inadequate treatment strategies. The National Asthma Campaign was formed with the aims of reducing the mortality and morbidity in asthma, maintaining normal airway function and a normal lifestyle for patients with asthma. Constituent bodies are respiratory physicians (Thoracic Society of Australia and New Zealand), family doctors (Royal Australian College of General Practitioners), pharmacists (Pharmaceutical Society of Australia) and the Asthma Foundations of Australia.

The aims of asthma management are to minimise symptoms, to maximise lung function and maintain function at its best at all times, identify trigger factors and prevent the development of permanently abnormal lung function, to reduce the risk of death from an acute attack and to achieve the best quality of life for the person with asthma.

The Six Step Asthma Management Plan outlines these principles.

1. *Assess asthma severity*

Assess lung function when the condition is stable, not during an acute attack.

2. *Achieve best lung function*

Treat with intensive asthma therapy until the 'best' lung function is achieved as shown by measurement of spirometry or PEF.

3. *Maintain best lung function—avoid trigger factors*

Identify and avoid trigger factors and inappropriate medications. Peak flow monitoring can be helpful here.

4. *Maintain best lung function with optimal medication*

Treat with the least number of medications and use the minimum doses necessary.

Ensure the patient understands the difference between 'preventer' medications which combat inflammation and 'reliever' which relax bronchial smooth muscle.

Take active steps to reduce the risk of adverse effects.

5. *Develop an action plan*

Discuss and write a plan for the management of exacerbations.

Detail the increases in medication doses and when and how to gain rapid access to medical care.

6. *Educate and review regularly*

Ensure patients and their families understand the disease, the rationale for their treatment and how to implement their action plan.

Emphasise the need for regular review, even when asthma is well controlled.

The concept of the individual asthmatic person taking an active role in the management of his or her condition as part of a team effort with their local doctor and pharmacist is very important in successful management. The best patient outcome is most likely to be achieved when there is a close working relationship between an interested doctor and an informed patient.

BRUCE KNOX

POLLEN AND THE WEATHER

Pollen grains occur in conifers and flowering plants and carry the male gametes. They are released into the air for fertilisation so that pollen is a natural component of the atmosphere in all seasons, but is especially numerous in spring and early summer in temperate climates. Susceptible humans, breathing the pollen-laden air, develop the symptoms of hay fever and asthma. These allergic diseases are triggered by the presence of certain proteins and glycoproteins in some kinds of pollen that act as allergens. These are environmental proteins or glycoproteins, which interact with the human immune system and trigger the allergic response. Given the dramatic increase in incidence of allergic disease that has occurred during the past 30 years, there has been increasing public concern about allergenic pollen. In this talk, we will examine when, where and in what quantities pollen allergens are present in the aerial environment and how it is affected by weather patterns.